

REMARKS

Applicants respectfully request reconsideration of this application in view of the foregoing amendments and the following remarks.

Claim Status

Claims 1-14 are pending in this application. Claims 1-3, 7 and 8 have been rejected and, claims 4-6 and 9-14 have been objected to by the Examiner. Claims 1-9, of which claims 1 and 8 are independent, are herein amended and new claims 15-17 are added. No new matter has been added by these amendments.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 7 and 8 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,288,698 (Ishii) in view of U.S. Patent No. 4,819,190 (Hinman). Claims 2 and 3 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishii in view of U.S. Patent No. 5,485,558 (Weise).

As will be explained below, Applicants respectfully submit that independent claims 1 and 8, as amended, are neither taught, disclosed nor suggested by Ishii, taken alone or in combination with Hinman and/or Weise.

The present invention, as recited in amended claim 1, is directed to an LCD controller that includes, *inter alia*, a dithering pattern register section, modular register counters, multiplexers and a selection means. In particular, the dithering pattern register section comprises “a first dithering pattern register for storing binary data of a gray level having a denominator value, wherein the gray level has a same bit number as the denominator value of the first dithering pattern register.”

Thus, in accordance with the present invention, the first dithering pattern register of the dithering pattern register section can form dithering pattern values for the gray level using the same bit denominator value of the first dithering pattern register.

Ishii, on the other hand, discloses an apparatus for controlling flat-panel display gray-scale and brightness. The apparatus of Ishii uses a dither logic device for performing dithering on pixel data, wherein only certain dither patterns are stored as data. None of the dithering patterns are stored in a dithering pattern register and/or registers having the same bit denominator value. Similarly, Hinman, which is directed to a video line processor for varying the size of a video image portion in an image processor, does not disclose storing dithering patterns in a dithering pattern register and/or registers having the same bit denominator value. Accordingly, Ishii taken alone or in combination with Hinman, does not teach, disclose nor suggest the invention as recited in claim 1.

The Examiner (with respect to claim 2), however, asserted that although “Ishii does not teach a liquid crystal display controller wherein the dithering pattern register section forms dithering patterns by dividing the gray levels into groups each having a same denominator value,” Weise teaches “a system for displaying color on a computer using dithering techniques by dividing the area of the color display to be filled with an application-specified RGB value into 8-by-8 groups which would obviously make the denominator value to be 8 for all patterns.” Thus, the Examiner alleges, it would have been obvious to one of ordinary skill in the art to “utilize dithering pattern techniques taught by Weise into the device of [Ishii] because it would a [sic] system and method for generating a dither pattern that is a close approximation of a specified color.”

As amended, claim 2 recites an LCD controller wherein “the dithering pattern register section forms dithering patterns using the same bit number as the gray level of the denominator value of the first dithering pattern register” of claim 1. This feature is not taught by Weise.

Rather, Weise discloses a method and system for generating a dither pattern that is a close approximation of a specified color. The system disclosed in Weise generates a dither pattern by setting pels (i.e., picture elements) in a dither pattern to mapped active colors based on a determined number of pels for that color and a predetermined base pattern. Weise does not disclose a dithering pattern register section that forms dithering patterns using the same bit number as the gray level of the denominator value of a first dithering pattern register. Nor does Weise disclose the first dithering pattern register as recited in claim 1. Accordingly, Ishii taken alone or in combination with Weise, does not teach, disclose nor suggest the invention as recited in claims 1 or 2.

As such, Applicants believe that the invention as recited in claims 1-14 is patentable over the cited art because neither Ishii, Hinman or Weise, taken alone or in combination, teach, disclose nor suggest the invention as claimed.

New Claims

New claims 15-17 have been added to further clarify the dithering pattern register section of claim 1. As claims 15-17 depend from claim 1, they are believed to be allowable for at least similar reasons as discussed above for claim 1.

Claim Objections

Claims 4-6 and 9-14 have been objected to as being dependent upon a rejected base claim, but would allowable if rewritten in dependent form including all the limitations of the base claim and any intervening claims.

The amendments to claims 1 and 8, from which claims 4-6 and 9-14 depend, respectively, render moot the objections to these claims.


Dependent Claims

Applicants have not independently addressed the rejections of the dependent claims (except claim 2) because Applicants submit that, in view of the amendments to the claims presented herein and, for at least similar reasons as why the independent claims from which the dependent claims depend are believed allowable as discussed, *supra*, the dependent claims are also allowable. Applicants however, reserve the right to address any individual rejections of the dependent claims should such be necessary or appropriate.

CONCLUSION

Accordingly, Applicants submit that the claims as herein presented are allowable over the prior art of record, taken alone or in combination, and that the respective rejections be withdrawn. Applicants further submit that the application is hereby placed in condition for allowance which action is earnestly solicited.

Respectfully submitted,

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